Lesson Plan 2
Railroad Surveys

Objective: Students will understand the impact of physical geography on the decision making process in the development of railroads.

Materials Needed: physical maps of the United States for each group; access for each group to encyclopedias, almanacs, or CDroms with climate, flora, and fauna information for states west of the Mississippi, copies of Handout A for each student, copies of *Army Explorers of the 19th Century* chart.

Background: As the need for a transcontinental railroad grew during the 1850's with the United States' expansion to the Pacific Ocean, Congress was urged to consider possible routes and financial assistance for the building of the railroads. Although at one time more than one line was considered, that idea was rejected as being too costly. Of the many routes possible, four that had congressional backing were chosen for a closer look. Between 1853-54, these routes were surveyed. While railroad construction was considerably slowed by the Civil War, transcontinental lines were eventually built on or near all four routes surveyed. Probably one of the greatest successes of the survey process, though, was the collection of flora, fauna, geological, and geographical information for the entire trans-Mississippi West region which eventually filled a thirteen volume final report.

Schubert, Frank N. Vanguard of Expansion: Army Engineers in the Trans-Mississippi West 1819-1879. Washington, D.C.: Historical Division, Office of Administrative Services, Office of the Chief of Engineers. 1980.

Procedure: Divide students into groups. Assign each group to be one of the following railroad survey leaders and their group of explorers from the *Army Explorers of the 19th Century* chart: Isaac I. Stevens, northern route from St. Paul to Puget Sound between the 47th and 49th parallels; John W. Gunnison, 38th parallel from the headwaters of the Arkansas to Great Salt Lake; Lt. Amiel W. Whipple, 35th parallel from Ft. Smith to California via Albuquerque; and Lt. John Pope & Lt. John G. Park, 32nd parallel through Texas and the Gadsden Purchase. Have students work in groups to complete the map and survey questions. When they have finished, have each group make a presentation to the class on their findings. Compare their findings with those of the actual surveyors. Have the class decide which route would be the most practical choice for a railroad.

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Handout A

1. Using another map as a guide, draw in the parallel for your railroad survey. Mark the beginning and ending points you would choose for your railroad.

2. Assign each member of your group to one of the following topics: major landforms; major rivers or bodies of water; climate (average rainfall/snowfall, low and high temperatures in summer and winter); and plants and animals. Each member should research their topic along the route of your railroad survey from the beginning to the end point.

3. Report your findings to the group. Based on your findings, would your route be suitable for the development of a railroad? Consider the following questions in making your decision:

   Is there adequate water spaced evenly along your route (steam engines require filling with water every fifteen to thirty miles)?

Are there any natural resources (trees for lumber, vegetation to feed horses and mules, animals to be hunted for food for workers) available for the building of your railroad? Where are they? Are they spread evenly along your route or would you have to transport them a long distance to where they were needed?

How many months during the year would you be able to build/run your railroad? Are there months when there would be too much rain or snow? Too little rain? Too hot? Too cold?

Are there mountains,deserts, or other major landforms which might be difficult to cross? Is there a way around these obstacles that is not too far away?

What other information did your group discover that you consider important?

4. What is the best feature of your railroad route?

5. What is the worst feature of your railroad route?